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(54) Title: METHOD TO DETERMINE THE SPATIAL DISTRIBUTION OF MAGNETIC PARTICLES AND MAGNETIC PARTICLE ADMINISTERING COMPOSITIONS

(57) Abstract: The invention relates to a method to determine the spatial distribution of magnetic particles in an examination area of an object of examination with the following steps: a) Generation of a magnetic field with a spatial distribution of the magnetic field strength such that the examination area consists of a first sub-area with lower magnetic field strength and a second sub-area with a higher magnetic field strength, b) Change of the particularly relative spatial position of the two subareas in the area of examination or change of the magnetic field strength in the first sub-area so that the magnetization of the particles changes locally, c) Acquisition of signals that depend on the magnetization in the area of examination influenced by this change, and d) Evaluation of signals to obtain information about the change in spatial distribution and/or the movement of the magnetic particles in the area of examination, where the magnetic particles are introduced into and/or are present in the area of examination in a suspension, aerosol, in the form of a powder, especially diluted, with a casing or, more particularly a thin coating, present in at least one capsule, or coupled to cells, particularly white or red blood corpuscles, immune cells, tumor cells or stem cells, or to ingredients, medication, antibodies, transplants or living organisms, or in the preliminary stage form, especially liquid. The invention further relates to a magnetic particle composition having improved imaging properties, to various different administering compositions for administering magnetic particles into an examination area and to methods for the administering of magnetic particles.

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